Amendments to the Specification:

Please insert the following paragraph after the title on page 1, line 1:

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority to International Application No. PCT/FR03/01769, filed June 12, 2003, and published as WO 03/107261 A2, which in turn, claims priority to French patent No. FR2841022, filed June 12, 2002.

Please insert the before the first paragraph beginning with the phrase "The present invention relates to" on page 1, line 4:

BACKGROUND OF THE INVENTION

a) Field of the invention

Please insert the following text immediately before the second paragraph beginning on page 1, line 8, which starts with the phrase "More particularly":

b) State of the art

Please insert the following text after first full paragraph and before the second full paragraph beginning on page 2, line 8, that starts with the phrase "For this purpose":

SUMMARY OF THE INVENTION

Please replace the paragraph beginning on page 2, line 32 with the following amended paragraph:

In preferred embodiments of the invention, one and/or other of the following arrangements may also be used where appropriate:

- the surface of the object forming an acoustic interface comprises several active zones and, during the recognition step, the sensed signal is compared with several predetermined signals each corresponding to the sensed signal when an impact is generated on one of the active zones;
- a single acoustic sensor is used;
- several acoustic sensors are used and, during the recognition step, one signal is sensed for each acoustic sensor and the signals sensed by the various acoustic sensors are compared with the predetermined signals independently of one another;
- the signals sensed by the various acoustic sensors are compared with the predetermined signals differently from one another;
- several acoustic sensors are used measuring several different magnitudes;
- at most two acoustic sensors are used;
- the method comprises an initial learning step during which each predetermined signal is determined experimentally by generating at least one impact on each active zone;
- each predetermined signal is a theoretical signal (computed or determined experimentally on an object identical or very similar from the acoustic point of view to the one used);
- during the recognition step, the sensed signal is compared with the at least one predetermined signal by intercorrelation;
- during the recognition step, the sensed signal is compared with the at least one predetermined signal by a recognition method chosen from voice recognition, signal recognition, shape recognition and recognition by neural network;
- during the recognition step, the sensed signal is associated either with a single active zone, or with no active zone;
- each active zone is associated with a predetermined information element (for example, an alphanumeric character, a command, etc.) and, when the impact is associated with an active zone, an electronic device is made to use the predetermined information element corresponding to that active zone;
- the surface of the object forming an acoustic interface comprises a number n of active zones, n being at least equal to 2, and the recognition step comprises the following sub-steps:

- an intercorrelation is made between the sensed signal (generally after normalization) and the predetermined signals Ri(t), i being a natural integer lying

between 1 and n which designates an active zone, and intercorrelation functions Ci(t) are thus obtained,

- a potentially activated active zone j is determined which corresponds to the result of intercorrelation Cj(t) having a maximum amplitude greater than those of the other results Ci(t),
- the distribution D(i) of the amplitude maxima of the intercorrelation results is also determined:

  ~~D(i) = Max ((Ci(t)),~~

  <u>D(i) = Max (Ci(t)),</u>

- the distribution D′(i) of the amplitude maxima of the intercorrelation results C′i(t) between Rj(t) and the various predetermined signals Ri(t) is also determined:

  ~~D′(i) = Max((C′i(t)),~~

  <u>D′(i) = Max (C′i(t)),</u>

- a determination is made as to whether the impact was generated on the active zone j as a function of a level of correlation between the distributions D(i) and D′(i);

\- during the recognition step, the sensed signal is processed in order to extract therefrom the data representative of certain characteristics of the sensed signal and the data thus extracted is compared with reference data extracted from the signal that is sensed when an impact is generated on each active zone;

\- during the recognition step, a code is determined from the data extracted from the sensed signal and this code is compared with a table which gives a correspondence between at least certain codes and each active zone;

\- the object forming an acoustic interface comprises at least two active zones and, during the recognition step, the resemblance values representative of the resemblance between the sensed signal and the predetermined signals are determined (especially a value derived from the intercorrelation function, for example its maximum), the impact is associated with several adjacent active zones corresponding to a maximum resemblance, called reference active zones, then, the position of the impact on the surface is determined as a function of the resemblance values attributed to the reference active zones;

\- the position of the impact on the surface is determined such that the resemblance values attributed to the reference active zones correspond as well as possible to theoretical resemblance values computed for ~~said~~ <u>the</u> reference active zones for an impact generated in said position on the surface;

- the theoretical resemblance values are a function of the position of the impact on the surface, determined in advance for each possible set of reference active zones;
- the active zone is identified by comparison between the phase of the predetermined signals Ri(t) and of the sensed signal;
- during the learning phase, a computation is made of the Fourier transform $R_i(\omega)=|R_i(\omega)| \bullet e^{j\,\varphi i(\omega)}$ of each acoustic signal $R_i(t)$ generated by an impact on the active zone i, where i is an index lying between 1 and n, and from this Fourier transform only the phase component $e^{j\,\varphi i(\omega)}$ is retained, only in the frequency bands ω in which the amplitude $|R_i(\omega)|$ is greater than a predetermined threshold, then the same process is applied to each sensed acoustic signal S(t) during the normal operation of the device;
- the predetermined threshold is equal to the maximum of MAX/D and $|B(\omega)|$, where:
- MAX is chosen from the maximal value of the modules $|R_i(\omega)|$, the maximal value of the modules $|R_i(\omega)|$ each normalized in energy, and the maximal value of the envelope of the average of the modules $|R_i(\omega)|$ each normalized in energy,
- D is a constant,
- $|B(\omega)|$ is the average of several noise spectra in the object forming an acoustic interface, acquired at different times;
- during the normal operation of the device:
- a product $P_i(\omega)$ is computed equal to $S'(\omega)$ multiplied by the conjugate of $R_i'(\omega)$ for references i = 1 ... n,
- then the products $P_i(\omega)$ are normalized,
- then the inverse Fourier transform of all the products $P_i(\omega)$ is carried out and temporal functions $X_i(t)$ are obtained,
- and the signal S(t) is attributed to an active zone ~~(10)~~ as a function of said temporal functions $X_i(t)$;
- the signal S(t) is attributed to an active zone as a function of the maximal values of said temporal functions $X_i(t)$.

On page 6, please insert the following before the paragraph beginning "In the drawings" on page 6, line 32, of the specification:

BRIEF DESCRIPTION OF THE DRAWINGS

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On page 7, please insert the following before the paragraph beginning "Figure 1 depicts" on page 7, line 19, of the specification:

DESCRIPTION OF PREFERRED EMBODIMENTS

On page 13, line 9, please replace the paragraph beginning "As a more precise example" with the following amended paragraph:

As a more precise example, the following method can in particular be used to recognize the active zone 10 from which the sensed signal S(t) comes:

(1) after normalization of the sensed signal S(t) (for example S(t) is calibrated so that its energy is equal to 1), the signal S(t) generated by the sensor 6 is intercorrelated with the n predetermined signals also normalized from the library, denoted Ri(t) where i = 1..n. Functions Ci(t) are thus obtained that are the temporal results of the product of intercorrelation of the signal S(t) respectively with the signals Ri(t) from the library. Based on these computations is determined a potentially activated active zone j ~~corresponds~~ <u>corresponding</u> to the result of intercorrelation Cj(t) having a maximum amplitude greater than those of the other results Ci(t).

(2) The distribution D(i) of the amplitude maxima of the intercorrelation results is also determined:

~~D(i) = Max((Ci(t)) where i = 1..n.~~

<u>D(i) = Max(Ci(t)) where i = 1..n.</u>

(3) A second distribution function DN(i), obtained in the same manner as the computation of the function D(i) but replacing S(t) with Rj(t), is computed.

(4) An intercorrelation is carried out of the distributions of the amplitude maxima D(i) and DN(i). If the maximal amplitude E of the result of intercorrelation between D(i) and DN(i) is sufficient, then j is the considered number of the activated zone. Otherwise, the signal generated by the sensor corresponds to a false alarm.

On page 15, line 21, please replace the paragraph beginning "As a nonlimiting example" with the following amended paragraph:

As a nonlimiting example, a 16-bit code can be determined from the sensed signal S(t) in the following manner:

- the first 8 bits of the code are determined from the frequency spectrum of the signal S(t) that is subdivided into 8 predetermined frequency tranches $[f_k, f_{k+1}]$, k=1..8: the bit of rank k is equal to 1 for example if the final energy value given by the spectrum at frequency f_{k+1} is greater than the average energy value of the acoustic wave in the frequency ~~tranche~~ tranches $[f_k, f_{k+1}]$ and this bit is 0 otherwise;
- the last 8 bits of the code are determined from the temporal signal S(t) that is subdivided into 9 predetermined temporal tranches $[t_k, t_{k+1}]$, k=1..9: the bit of rank k+8 is equal to 1 for example if the average value of the signal power during the period $[t_k, t_{k+1}]$ is greater than the average value of the signal power during the period $[t_{k+1}, t_{k+2}]$, k=1..8, and this bit is 0 otherwise.

On page 21, line 8, please replace the paragraph beginning "When the abovementioned theoretical" with the following amended paragraph:

When the abovementioned theoretical resemblance functions Rth have been determined, when seeking to determine the position of an impact I between four adjacent active zones R1-R4 (advantageously point-like), this position can for example be determined by an iterative optimization process by minimizing a function of error between the values D(i) previously defined ~~(D(i)=Max(Ci(t))~~ D(i) = Max(Ci(t)), with i here being the number of the reference active zone Ri in question) and the values of theoretical resemblance Rth(I, Ri). For example, a function of error E equal to the sum of the values $(D(i)\text{-}Rth(I, Ri))^2$ can be minimized.